

FIVE-YEAR REVIEW REPORT

FIVE-YEAR REVIEW

O'CONNOR COMPANY SITE AUGUSTA, MAINE

RESPONSE ACTION CONTRACT (RAC), REGION I

**For
U.S. Environmental Protection Agency**

**By
Tetra Tech NUS, Inc.**

**EPA Contract No. 68-W6-0045
EPA Work Assignment No. 123-FRFE-0133
TtNUS Project No. N4254**

September 2002



TETRA TECH NUS, INC.

FIVE-YEAR REVIEW REPORT

F. O'CONNOR SUPERFUND SITE

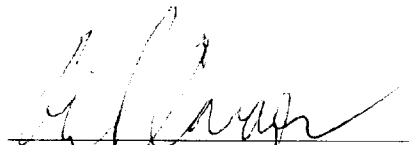
AUGUSTA, MAINE

Prepared by:

U.S. Environmental Protection Agency

Region I

Boston, Massachusetts



Richard Cavagnero, Acting Director
Office of Site Remediation and Restoration

9-13-02

Date



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

MEMORANDUM

DATE: September 13, 2002

SUBJ: Five-Year Review
F. O'Connor Superfund Site

FROM: Nancy Smith *[Signature]*
Terrence Connelly

THRU: Mary Jane O'Donnell, Chief *[Signature]*
ME, VT, and CT Superfund Section

TO: Richard Cavagnero, Acting Director *[Signature]*
OSRR

Summary of Action

Attached for your review and signature is the first five-year review report for the F. O'Connor Superfund Site, the ("Site") in Augusta, Maine. This review covers all three operable units of the Site. EPA Region I conducted this review pursuant to CERCLA section 121(c), National Oil and Hazardous Substances Pollution Contingency Plan (NCP) section 300.430(f)(4)(ii), and OSWER Directives 9355.7-02 (May 23, 1991), and 9355.7-02A (July 26, 1994). This is a statutory review, conducted for post-October 17, 1986 Remedial Actions. The purpose of a five-year review is to ensure that a remedial action remains protective of human health and the environment.

Major Issues

No major issues were identified in the five-year review process. An analysis of the technical practicability of restoring the groundwater beneath the site to drinking water quality within a reasonable timeframe was underway prior to the start of the review. EPA has determined that it is technically impracticable from an engineering perspective to attain federal and state drinking water standards for a limited portion of the Site, and is thus waiving attainment of these ARARs for that portion of the Site. (A ROD amendment documenting this change is being prepared for signature within the next two weeks)

The five-year review process revealed that the remedies for all three operable units have been implemented in accordance with the requirements of the 1989 ROD, as modified by the 1994 ESD and 1995 contingency remedy.

The remedial action for source control (OU-1) has been completed and is protective of human health and the environment. Exposure pathways that could result in unacceptable risk are being controlled. The finalization of the O&M plan will ensure that the OU-1 remedy will remain protective.

The remedy for management of migration (OU-2) is protective of human health and the environment. For a limited portion of the site, because of the presence of residual oil in the subsurface and PCB and VOC concentrations that can not meet ROD target cleanup levels, a technical impracticability waiver has been granted. Ongoing oil recovery and institutional controls ensure that exposure pathways that could result in unacceptable risk are being controlled.

The remedy at OU-3 is expected to be protective of human health and the environment upon completion of the 10-year sampling program. In the interim, exposure pathways that could result in unacceptable risks are being controlled. Current data indicate that PCB concentrations in the sediments of Riggs Brook are slightly above the trigger level in isolated and sporadic occurrences. Fish tissue PCB concentrations have remained below the ROD target goal.

Headquarters Perspective/Involvement

Headquarters provided comments on the draft five-year review report as part of its review of all five-year reviews following the June 2001 guidance document "Comprehensive Five-Year Guidance", OSWER No. 9355.7-03B-P. These comments have been addressed.

Public Involvement

EPA issued a press release on May 8, 2002 that was published in the Kennebec Journal announcing EPA's review of the progress of the O'Connor Site cleanup. The press release encouraged public participation. There is no established Community Advisory Group. To date EPA, Maine DEP and Central Maine Power (PRP) have encountered little participation or involvement from the local community. All site-related documents are available at the Lithgow Public Library in Augusta. According to staff at the library there has been limited use of the documents. A notice which briefly summarizes this five-year review will be published in a major local newspaper of general circulation.

Media-Congressional Involvement

There has been no media or congressional involvement regarding the five-year review process.

State Coordination

Maine DEP has participated in the review process, including the site inspection, interviews, and

has provided comments on the draft five-year review report. Maine DEP expressed concerns over the finalization of the O&M plan, and requested specific language regarding the status of institutional controls and target cleanup goals. These concerns have been addressed in the final report.

Recommendation

The selected remedy is protective of human health and the environment. Therefore, we recommend you sign this five-year review.

Contact Persons

Nancy Smith, Work Assignment Manager, 918-1436
Terrence Connelly, Remedial Project Manager, 918-1373

Attachment: Five-Year Review Report

FIVE-YEAR REVIEW REPORT

FIVE-YEAR REVIEW

O'CONNOR COMPANY SITE
AUGUSTA, MAINE

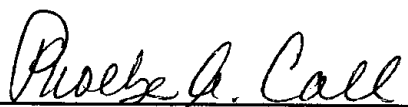
RESPONSE ACTION CONTRACT (RAC), REGION I

For
U.S. Environmental Protection Agency

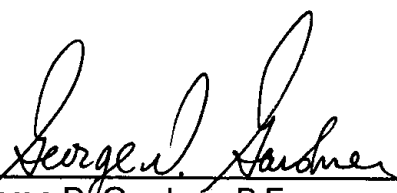
By
Tetra Tech NUS, Inc.

EPA Contract No. 68-W6-0045
EPA Work Assignment No. 123-FRFE-0133
TtNUS Project No. N4254

September 2002



Phoebe A. Call
Project Manager



George D. Gardner, P.E.
Program Manager

**TABLE OF CONTENTS
FIVE-YEAR REVIEW REPORT
FIVE-YEAR REVIEW
O'CONNOR COMPANY SITE
AUGUSTA, MAINE**

<u>SECTION</u>	<u>PAGE</u>
ES-1 EXECUTIVE SUMMARY	E-1
1.0 INTRODUCTION	1-1
2.0 SITE CHRONOLOGY	2-1
3.0 BACKGROUND.....	3-1
3.1 Physical Characteristics	3-1
3.1.1 Setting	3-1
3.1.2 Topography	3-1
3.1.3 Subsurface Conditions	3-1
3.2 Land and Resource Use	3-4
3.3 History of Contamination	3-5
3.4 Initial Response	3-5
3.5 Basis for Taking Action	3-6
4.0 REMEDIAL ACTIONS	4-1
4.1 Remedy Selection	4-1
4.1.1 Source Control	4-1
4.1.2 Management of Migration	4-2
4.2 Remedial Implementation	4-3
4.2.1 Source Control (OU-1)	4-3
4.2.2 Management of Migration (OU-2)	4-5
4.2.3 Riggs Brook (OU-3)	4-7
4.3 System Operations/O&M	4-7
5.0 PROGRESS SINCE LAST 5-YEAR REVIEW	5-1
6.0 FIVE-YEAR REVIEW PROCESS	6-1
6.1 Administrative Components	6-1
6.2 Community Notification and Involvement	6-1
6.3 Document Review	6-1
6.4 Data Review	6-2
6.4.1 Source Control OU-1	6-2
6.4.2 Management of Migration OU-2	6-2
6.4.3 Riggs Brook OU-3	6-4
6.5 Site Inspection	6-5
6.6 Interviews	6-6

TABLE OF CONTENTS (Cont'd)
FIVE-YEAR REVIEW REPORT
FIVE-YEAR REVIEW
O'CONNOR COMPANY SITE
AUGUSTA, MAINE

<u>SECTION</u>	<u>PAGE</u>
7.0 TECHNICAL ASSESSMENT	7-1
7.1 Question A: Is the Remedy Functioning as Intended by the Decision Documents?	7-1
7.1.1 OU-1: Source Control Remedial Action.....	7-1
7.1.2 OU-2: Management of Migration	7-3
7.1.3 OU-3: Riggs Brook	7-4
7.2 Question B: Are the Exposure Assumptions, Toxicity Data, Cleanup Levels and Remedial Action Objectives (RAOs) Used at the Time of Remedy Selection Still Valid?	7-6
7.2.1 OU-1: Source Control Remedial Action.....	7-6
7.2.2 OU-2: Management of Migration	7-8
7.2.3 OU-3: Riggs Brook	7-10
7.3 Question C: Has Any Other Information Come to Light That Could Call into Question the Protectiveness of the Remedy?	7-11
7.3.1 OU-1: Source Control Remedial Action.....	7-11
7.3.2 OU-2: Management of Migration	7-11
7.3.3 OU-3: Riggs Brook	7-12
7.4 Technical Assessment Summary	7-12
7.4.1 OU-1: Source Control Remedial Action.....	7-12
7.4.2 OU-2: Management of Migration	7-13
7.4.3 OU-3: Riggs Brook	7-13
8.0 ISSUES8-1	
9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS	9-1
10.0 PROTECTIVENESS STATEMENTS	10-1
11.0 NEXT REVIEW	11-1

TABLES

<u>NUMBER</u>	<u>PAGE</u>
2-1 Chronology of Site Events	2-1
3-1 Contaminants of Concern At Site	3-8
4-1 Annual System Operations/O&M Costs - OU-1	4-9

TABLE OF CONTENTS (Cont'd)
FIVE-YEAR REVIEW REPORT
FIVE-YEAR REVIEW
O'CONNOR COMPANY SITE
AUGUSTA, MAINE

FIGURES

<u>NUMBER</u>		<u>PAGE</u>
3-1	Site Location Map	3-2
3-2	Site Features	3-3
4-1	Site Plan	4-4

APPENDICES

A	Document Review List/References
B	Site Inspection Report
C	Site Interview List
D	ARARs and TBCs
E	Declaration Of Restrictive Covenant And Map Showing Area Covered By Covenant
F	MEDEP Comments, dated August 9, 2002, on the Draft Five Year Review Report

ACRONYMS

AOC	Administrative Order by Consent
ARAR	Applicable or Relevant and Appropriate Requirement
AWQC	Ambient Water Quality Criteria
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CMP	Central Maine Power Company
CMR	Code of Maine Rules
cPAHs	carcinogenic polycyclic aromatic hydrocarbons
CSF	Cancer Slope Factor
CWA	Clean Water Act
ESD	Explanation of Significant Differences
HA	health advisory
IEUBK	Integrated Exposure Uptake Biokinetic Model
IRIS	Integrated Risk Information System
MCL	Maximum Contaminant Level
MEDEP	Maine Department of Environmental Protection
MEGs	Maximum Exposure Guidelines
MOM	Management of Migration
MRSA	Maine Revised Statutes Annotated
MW	Monitoring Well
NCP	National Contingency Plan
ND	non detect
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
NRPA	Natural Resources Protection Action
OU	Operable Unit
O&M	Operations and Maintenance
PCBs	Polychlorinated biphenyls
ppb	parts per billion
ppm	parts per million
PRP	Potentially Responsible Party

ACRONYMS (Cont'd)

RAGS	Remedial Action Guidelines
RAO	Remedial Action Objectives
RfDs	USEPA Risk Reference Doses
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Responsible Party
RSOW	Remedial Design/Remedial Action Revised Statement of Work
SARA	Superfund Amendment Reauthorization Act
SC	Source Control
SCRA	Source Control Remedial Action
SDWA	Safe Drinking Water Act
Site	O'Connor Company Superfund Site
SOW	Statement of Work
TBC	To Be Considered
TI	Technical Impracticability
TtNUS	Tetra Tech NUS, Inc.
TSCA	Toxic Substances Control Act
TWA	Transformer Work Area
µg/L	micrograms per liter
USEPA	United States Environmental Protection Agency
VER	vacuum enhanced recovery
VOC	volatile organic compound
W&C	Woodard & Curran Inc.

EXECUTIVE SUMMARY

A five-year review was performed for the F. O'Connor Superfund Site in Augusta, Maine, as required by CERCLA when hazardous waste is left onsite, which does not allow unrestricted use of a site. The purpose of the five-year review was to assess whether the remedy selected for the Site remains protective of human health and the environment.

The 1989 Record of Decision selected a remedy to address the risks present at the Site resulting from the operation of a salvage and electrical transformer recycling business. The remedy for the O'Connor Superfund Site (Site) consists of three operable units (OUs). The Source Control remedy (OU-1) specified in the 1989 Record of Decision (ROD) was changed in an Explanation of Significant Differences (ESD) in 1994. The Source Control remedial action included excavation and offsite disposal of soils and sediments that exceeded target cleanup levels, implementation of institutional controls, treatment of surface waters on the Site and site restoration. Restoration activities included installation of a vegetated cover over the excavated areas and reconstruction of wetland areas. The Source Control remedial action was completed on November 11, 1997. The trigger for this five-year review was the start of source control activities in August 1996.

The Management of Migration (MOM) remedy is separated into OU-2 for groundwater and OU-3 for Riggs Brook sediment. The OU-2 activities are ongoing and consist of institutional controls, oil recovery, and groundwater monitoring. Vacuum enhanced recovery of residual oil from the Transformer Work Area (TWA) II area has been used to remove free oil from groundwater monitoring wells. Groundwater wells around the perimeter of the Site meet the target cleanup goals. Concentrations of VOCs and PCBs in groundwater meet the target cleanup goals throughout most of the Site. The OU-3 remedy includes ten years of annual monitoring of Riggs Brook sediment and periodic biota sampling. Biota results have been below the target level; sediment results have shown sporadic exceedances of the PCB threshold level that would trigger an evaluation of the need for further remedial action.

The five-year review process revealed that the remedies for all three operable units have been implemented in accordance with the requirements of the ROD, as modified by the ESD and contingency remedy. The remedy for OU-2 is not protective in the TWA II/TI zone of the Site. A ROD amendment is underway to address the issues covered in the TI Waiver. Excluding the TWA II area, the remedy is functioning as designed. A restrictive covenant signed by Central

Maine Power (CMP) and MEDEP in 1994 restricts certain actions on the Site without written approval from MEDEP. Although this covenant is held in escrow by MEDEP and therefore there is some question as to its enforcement, CMP has complied with the restrictions and consequently, the threat to exposure to contaminated groundwater has been prevented. Achievement of groundwater cleanup goals in the TWA II area will be addressed in the ROD amendment and revised Consent Decree/Statement of Work (CD/SOW).

Five-Year Review Protectiveness Statements:

- OU-1: The remedial action for OU-1 has been completed and is protective of human health and the environment. Exposure pathways that could result in unacceptable risk are being controlled. The finalization of the O&M plan will ensure that the OU-1 remedy will remain protective.
- OU-2: The remedy at OU-2 is protective of portions of the Site. It is not protective of the TWA II area and surroundings as defined as the TI Zone in the TI Waiver due to the presence of residual oil in the subsurface and PCB and VOC concentrations that can not meet target cleanup levels. Actions now underway to implement the TI Waiver are needed to ensure protectiveness.
- OU-3: The remedy at OU-3 is expected to be protective of human health and the environment upon completion of the 10-year sampling program. In the interim, exposure pathways that could result in unacceptable risks are being monitored. Current data indicate that PCB concentrations in the sediments of Riggs Brook are slightly above the trigger level in isolated and sporadic occurrences.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name <i>(from WasteLAN)</i> : O'Connor Co.		
EPA ID <i>(from WasteLAN)</i> : MED980731475		
Region: 1	State: ME	City/County: Augusta/Kennebec
SITE STATUS		
NPL status: Final		
Remediation status (choose all that apply): Operating (OU2&OU3) Complete (OU1)		
Multiple OUs?* YES	Construction completion date: ____ / ____ / ____	
Has site been put into reuse? NO		
REVIEW STATUS		
Lead agency: EPA		
Author name: Terrence Connelly		
Author title: Remedial Project Manager	Author affiliation: EPA Region I	
Review period:** 3/1/02 to 9/30/02		
Date(s) of site inspection: 5/21/02		
Type of review: Post-SARA		
Review number: 1 (first)		
Triggering action: OU1 Commencement of SCRA		
Triggering action date <i>(from WasteLAN)</i> : 7 / 30 / 1996		
Due date <i>(five years after triggering action date)</i> : 7 / 30 / 01***		

* "OU" refers to operable unit.

** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

*** The five-year review was scheduled to begin in August 2001 but was delayed until January 2002 due to a change in EPA project managers.

Five-Year Review Summary Form, cont'd.

Issues:

- OU-2 cleanup goals not achievable in TWA II area.
- Riggs Brook sediments have not attained target cleanup levels.
- Shortfall in wetland restoration acreage.
- 1992 MEG for PCBs lower than ROD target cleanup level for PCBs.
- Reevaluate groundwater use restrictions.

Recommendations and Follow-up Actions:

- Amend ROD to reflect TI Waiver and changes to OU-2 ARARs.
- Continue sediment monitoring program per ROD.
- Continue wetland monitoring.
- Analyze groundwater at lower PCB DL to evaluate if Site can attain lower 1992 MEG.
- Restructure Institutional Controls for long-term protectiveness.

Protectiveness Statement(s):

OU-1: The remedial action for OU-1 has been completed and is protective of human health and the environment. Exposure pathways that could result in unacceptable risk are being controlled. The finalization of the O&M plan will ensure that the OU-1 remedy will remain protective.

OU-2 : The remedy at OU-2 is protective in portions of the Site. It is not protective in the TWA II area and surroundings defined as the TI Zone in the TI Waiver due to the presence of residual oil in the subsurface and PCB and VOC concentrations that can not meet target cleanup levels. Actions now underway to implement the TI Waiver are needed to ensure protectiveness.

OU-3: The remedy at OU-3 is expected to be protective of human health and the environment upon completion of the 10-year sampling program, and in the interim, exposure pathways that could result in unacceptable risks are being monitored. Current data indicates that PCB concentrations in the sediments of Riggs Brook are slightly above the trigger level in isolated and sporadic occurrences.

Other Comments:

1.0 INTRODUCTION

The purpose of this five-year review is to determine if the remedy selected for the F. O'Connor Superfund Site (Site) in Augusta, Maine, is protective of human health and the environment. This report summarizes the five-year review process, investigations and remedial actions undertaken at the Site, evaluates the monitoring data collected, discusses any issues identified during the review, and presents recommendations to address them.

The United States Environmental Protection Agency, Region 1 (USEPA) is preparing this five-year review pursuant to the Comprehensive Environmental Response Compensation, and Liability Act (CERCLA) §121 and the National Contingency Plan (NCP). CERCLA §121 states:

“If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.”

The USEPA interpreted this requirement further in the National Contingency Plan; 40 CFR §300.430(f)(4)(ii) states:

“If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.”

The remedy for the Site was separated into three operable units:

- OU-1 Source Control
- OU-2 Management of Migration
- OU-3 Riggs Brook

The Source Control Remedial Action (SCRA) at OU-1 was completed in November 1997. Remedial actions at OU-2 and OU-3 are ongoing. A review of all three operable units is included in this report.

This is the first five-year review for the O'Connor Company Site. The triggering action for this statutory review is the commencement of SCRA activities in August 1996. Actions related to OU-2 (MOM) and OU-3 (Riggs Brook) commenced in October 1996. The five-year review is required since contamination remains at the Site above levels that allow for unrestricted use and exposure. The five-year review was scheduled to begin in August 2001 but was delayed until January 2002 due to a change in EPA project managers.

EPA has conducted this five-year review of the remedial actions implemented at the O'Connor Site in Augusta, Maine. Tetra Tech NUS, Inc. (TtNUS) supported USEPA in completion of the review under RACI Contract No. 68-W6-0045, W.A. No. 123-FRFE-0133. The work assignment began in March 2002 and will be completed in October 2002. Assistance was provided by the Maine Department of Environmental Protection (MEDEP), Central Maine Power Co. (CMP) and Woodard & Curran, Inc. (W&C), consultants working for CMP. As referenced in the 1991 Consent Decree, CMP participated in the five-year review process. W&C on behalf of CMP provided draft portions of the Five-Year Review Report to USEPA. W&C completed draft portions of the report between January and April 2002. The review was completed in accordance with USEPA Guidance OSWER No. 9355.7-03B-P.

2.0

SITE CHRONOLOGY

**TABLE 2-1
CHRONOLOGY OF SITE EVENTS
FIVE-YEAR REVIEW REPORT
O'CONNOR COMPANY SITE
AUGUSTA, MAINE**

DATE	EVENT
Early 1950s	F. O'Connor Co. begins operating a salvage and electrical transformer recycling business on the site.
Feb 1972	Oil spill on site found to have migrated toward Riggs Brook.
1978 & 1982	MEDEP conducts additional sampling events at the site, identifies polychlorinated biphenyl (PCB) contamination.
1982-1984	USEPA conducts sampling events at the site, confirms PCB contamination.
Sept 8, 1983	Site placed on National Priorities List (NPL)
Dec 21, 1984	USEPA issues Unilateral Administrative Order to O'Connor Co. requiring it to fence 5 acres of the Site and sample and analyze all drums and tanks on the site.
April 1985	USEPA notifies O'Connor and Central Maine Power of their potential responsibility for contamination at the Site.
May 13, 1986	O'Connor and CMP voluntarily enter into an Administrative Order by Consent (AOC) with USEPA to conduct a Remedial Investigation and Feasibility Study (RI/FS) at the Site.
May 19, 1986	MEDEP issues an Administrative Order to O'Connor designating the Site an Uncontrolled Hazardous Substance Site under Maine law.
June 23, 1986	MEDEP issues an AOC to O'Connor and CMP
May 23, 1987	USEPA and MEDEP issue an amended AOC to O'Connor and CMP. Order extends Site limits to approximately 9 acres.
June 15, 1989	CMP submits a draft RI/FS to USEPA and MEDEP for review.
Sept 27, 1989	ROD issued by USEPA.
Sept 3, 1991	CD between USEPA and CMP signed.
June 1994	MEDEP and CMP sign a Declaration of Restrictive Covenant.
July 11, 1994	ESD signed.
Oct 20, 1994	Revised Statement of Work (RSOW) issued
October 10, 1995	USEPA invokes the contingency remedy.
July 1996	Source Control 100% Design completed
Aug – Oct 1996	Phase I of Source Control completed (OU-1)
Oct 1996	First sampling of OU-3, Riggs Brook sediment
Oct 1996	Phase I Vacuum Enhanced Recovery (VER) (pilot) completed (OU-2)
Jan – May 1997	Phase II VER completed (OU-2)
May – Nov 1997	Phase II of Source Control completed (OU-1)
Nov. 11, 1997	Source Control Remedial Action completed
Aug – Oct 2001	Phase III VER completed (OU-2)
April 2002	Draft TI Evaluation Report submitted to USEPA and MEDEP for OU-2 Management of Migration.
August 2002	Completion of First Five-Year Review

3.0 BACKGROUND

3.1 Physical Characteristics

3.1.1 Setting

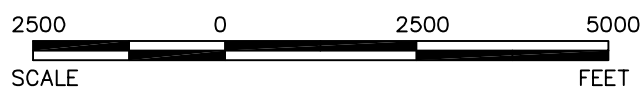
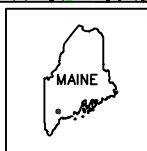
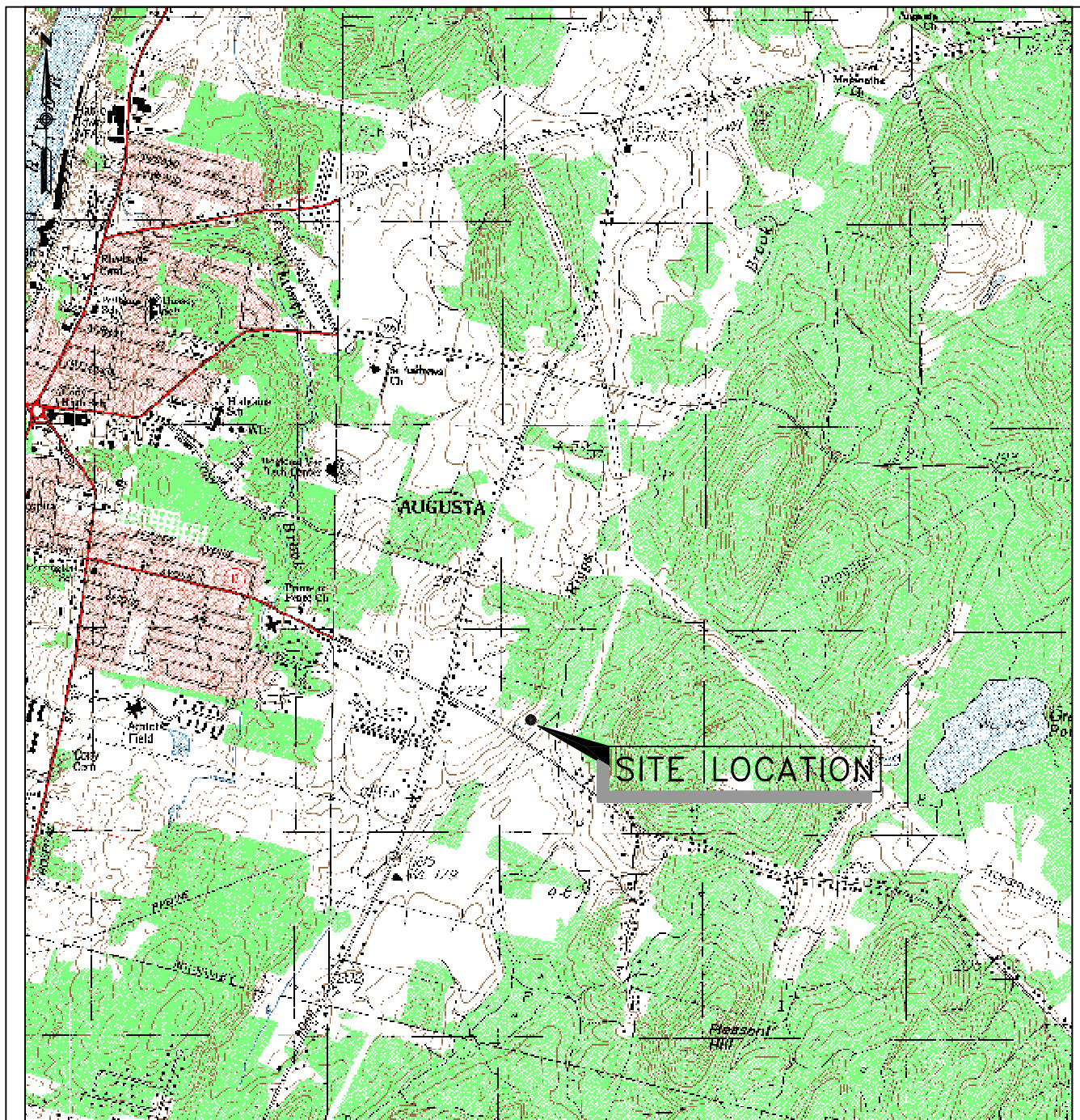
The F. O'Connor Superfund Site property consists of approximately 23 acres within a 28-acre property and is located on U.S. Route 17 approximately three miles east of the Kennebec River in Augusta, Maine. The surrounding area is generally rural. The property is bordered on the east and southeast by Riggs Brook, a small northerly flowing tributary of the Kennebec River, on the north and west by woodlands, and on the south by Route 17. The property south of Route 17 is generally wooded. A residence abuts the CMP property along its western boundary. The land at the Site was used as farmland until the 1950s when the F. O'Connor Company established a salvage yard and transformer recycling operation at the Site. The MEDEP-designated Hazardous Substance Site consists of the same 23 acres within the 28-acre property. The location of the property is shown on Figure 3-1.

3.1.2 Topography

The Site is located on a ridge that transects the Site in a generally northeast-southwest direction. An access road splits the Site from southwest to northeast. North and west of the road, the Site is relatively level, with a low swampy area known as the Upland Marsh. East and south of the road the topography slopes sharply toward Riggs Brook, with a change in elevation of approximately 50 feet. Three water bodies are located on the Site, all of which were created by operations of the F. O'Connor Co. and later reconstructed during the SCRA. The approximately 2-acre Upland Marsh drains to a channel that flows to the Upper and Lower Lagoons and on to the Riggs Brook wetlands. Figure 3-2 shows these features and Site topography.

3.1.3 Subsurface Conditions

The overburden soils at the Site generally consist, from surface to depth, of glacial marine silts and clays, glacial till, and bedrock. The clay tends to be absent only in areas of shallow bedrock. During source control, approximately 20,000 tons of soil and sediment with PCB concentrations greater than 10 ppm were excavated and disposed offsite. Another 3,000 tons,



SOURCE: WOODWARD & CURRAN

SITE LOCATION MAP

FIGURE 3-1

O'CONNOR COMPANY SUPERFUND SITE - FIVE-YEAR REVIEW

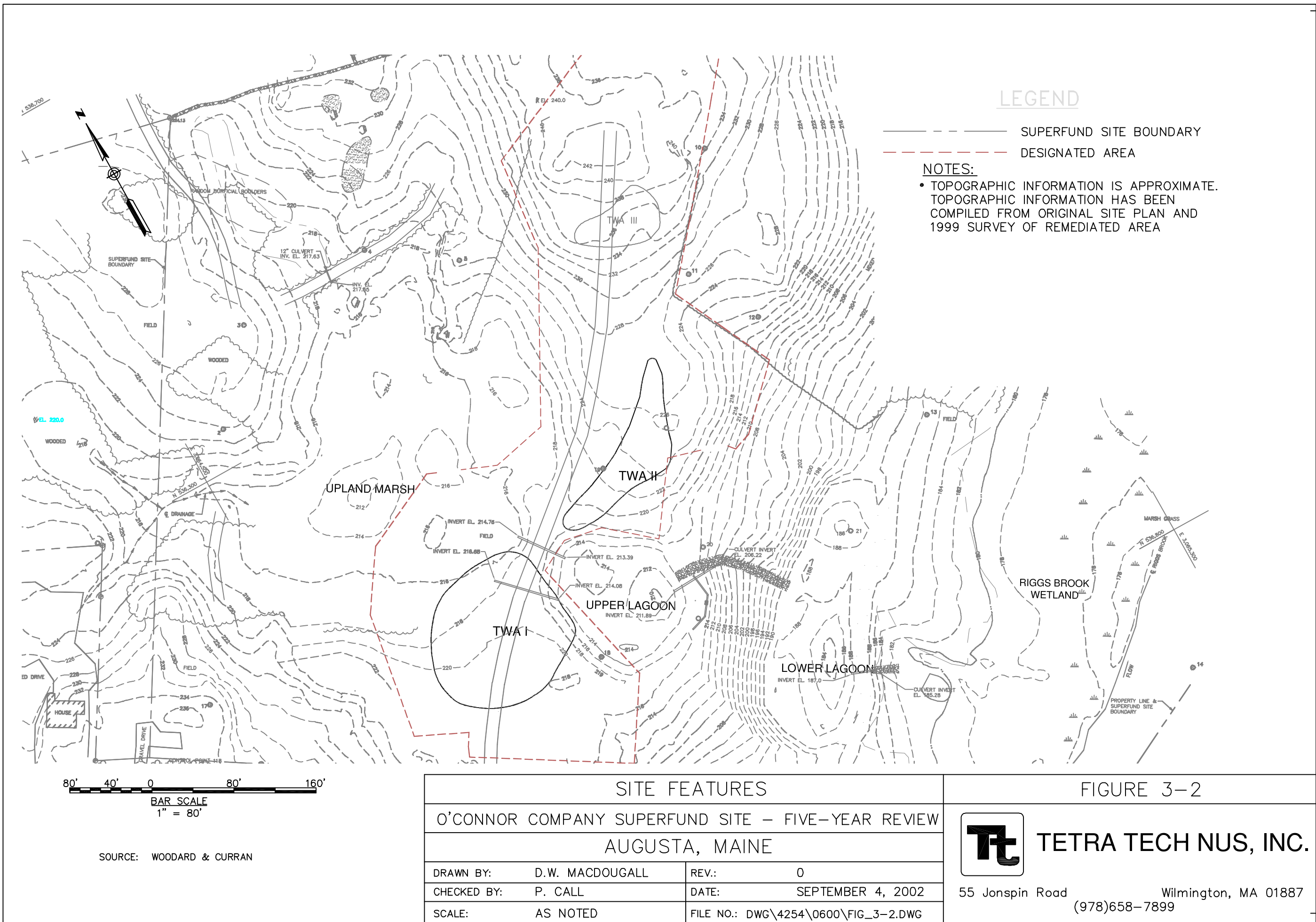
AUGUSTA, MAINE

DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	P. CALL	DATE:	JULY 5, 2002
SCALE:	AS NOTED	ACAD NAME:	DWG\4254\0600\FIG_3-1.DWG



TETRA TECH NUS, INC.

55 Jonspin Road
Wilmington, MA 01887
(978)658-7899



with PCB levels less than 10 ppm, were consolidated onsite in one area, identified as the Designated Area (see Figure 3-2). Approximately 24,000 cubic yards of clean soil (PCBs less than 1 ppm) were imported to the Site to restore the excavated area to approximate the original grade and to provide a 12-inch soil cover over the entire Designated Area.

Bedrock drilling completed during site investigations indicated mostly competent rock with very few recognizable fractures. Bedrock outcrops are found in the areas of transformer work area (TWA) I and III (see Figure 3-2).

The principal groundwater migration pathway on the Site is a discrete zone within the till along the top of the bedrock surface. Groundwater flow from the Upland Marsh (a large recharge basin) is confined and channeled through the bedrock trough in the bedrock saddle centered immediately northeast of the Upper Lagoon. The bedrock flow regime has very little water in storage. The vertical permeability of the bedrock is believed to be very low, creating a “quasi” perched condition of the overburden groundwater flow system. At the southeastern end of the Site, near Riggs Brook, the potentiometric surface of the bedrock groundwater is above the ground surface. MW-106B in this area is a free-flowing artesian well. (W&C, 2000).

3.2 Land and Resource Use

The Site is currently a mix of forest and open field, bordering the Riggs Brook wetland. The open fields encompass the formerly contaminated areas and the three reconstructed wetlands on the Site (Upland Marsh, Upper Lagoon, and Lower Lagoon). The Site is no longer secured with perimeter fencing and is not actively used by CMP. Surrounding land uses include low-density residential, light agricultural, fields, and forest. Current zoning maps and land use ordinances were obtained from the Augusta City Services Department. The upland portion of the Site is zoned as RRES – rural residential district, where residential development that conserves the rural character of the area is permitted. The portion of the Site that slopes down toward Riggs Brook is zoned LR – limited residential district. The LR district is suitable for residential and recreational development. The wetland area that surrounds Riggs Brook is zoned RP – resource protection district, where development would adversely affect water quality, productive habitat, biological ecosystems, or areas with scenic and natural values. (City of Augusta, ME Land Use Ordinance)

Natural resources on the O'Connor property include both terrestrial and aquatic habitats. Riggs Brook is not navigable in the vicinity of the Site, but large wetland areas in the Riggs Brook watershed have been mapped by the MEDEP. The Riggs Brook wetlands are considered to be shrub swamps, consisting of a mix of woodlands and emergent aquatic vegetation and peat. No rare or endangered species have been identified in wetland or woodland habitats associated with the Site. The Riggs Brook wetlands lie in a Zone A according to the City of Augusta Flood Insurance Rate Map (230067 0011 C), revised June 15, 1994. Zone A is a special flood hazard area inundated by 100-year flood where no base flood elevations have been determined. There are no other specified flood hazard zones covering the balance of the Site.

There are no mapped sand or gravel aquifers in the vicinity of the Site. Bedrock wells were historically used for domestic water in the area, however public water is now available throughout the area.

3.3 History of Contamination

The F. O'Connor Company operated a salvage yard for the dismantling and recycling of electrical transformers and capacitors on the Site from the early 1950s until the late 1970s. This resulted in drippage and spillage of oil to the ground, principally in the vicinity of the transformer work areas (TWAs). Soil and groundwater contamination primarily consisted of PCBs with some volatile and semi-volatile organic compounds, and inorganics. Potential sources of contamination that were identified on the Site included three TWAs, scrap piles, oil storage tanks, and two lagoons installed to help control oil migration from this Site.

3.4 Initial Response

The first report of contamination was due to an oil spill on the Site in February 1972, which was investigated by MEDEP. Later that year MEDEP requested the O'Connor Company contain all transformer fluids in above ground storage tanks to prevent spills.

In 1976 MEDEP conducted further investigations at the Site, and asked the O'Connor Company to construct two surface water lagoons on the Site to control migration of oils. The next year, MEDEP requested that the Company discontinue use of the lagoons and reclaim the area. Water from the lagoons was pumped into storage tanks and the sediments were excavated and

placed in a low area near the gravel access road. The sediments were underlain and covered by one-foot of clay soil. Placement of this soil created a barrier to surface water runoff, and resulted in the creation of the Upland Marsh.

The Site was proposed for inclusion on the NPL in December 1982, and placed on the final NPL on September 8, 1983. In April of 1985 the F. O'Connor Company and CMP were notified of their potential liability for the site.

CMP completed several additional response activities including placement of a chain link fence around the Site in 1985, removing the above ground storage tanks in 1986, and extending the chain link fence and removing over 500 tons of material from the scrap area in 1987.

Following completion of an RI/FS in 1989, the ROD for the Site was issued on September 27, 1989. CMP, an identified Potentially Responsible Party (PRP) at the site, signed a Consent Order with the USEPA on September 3, 1991 to undertake an investigation and remediation of the site. CMP also acquired ownership of the Site from the F. O'Connor Co. in 1992.

3.5 Basis for Taking Action

The hazardous substances that have been released to the Site are primarily related to PCB oils and scrap from the dismantling of transformers. Based on the compounds detected on the Site during the RI, contaminants of concern were identified. These contaminants of concern were listed in Table 1 of the ROD, and are provided in the first column of Table 3-1 of this report.

As discussed in the ROD, an Endangerment Assessment was performed to estimate the potential adverse human health and environmental effects from exposure to the contaminants of concern. The major conclusions drawn from the Endangerment Assessment are as follows:

- Direct contact with, ingestion of, or inhalation of vapors from soils contaminated with PCBs and carcinogenic polyaromatic hydrocarbons (cPAHs) may pose an incremental increase in cancer risk over a lifetime of exposure. Children potentially playing on the Site currently, or future residents living on the Site would be at the greatest risk. Lead in soils may also pose a risk of adverse, non-carcinogenic health effects (through direct contact and ingestion) by potential future residents living at the Site.

- An increased cancer risk over a lifetime of exposure may also be associated with direct contact and ingestion by children with the PCB-contaminated sediments in the lagoons located on the Site.
- Ingestion of the contaminated groundwater from the deep/bedrock system under the Site may pose potential long-term risks to future inhabitants of the Site. Contaminants of concern are 1,4-dichlorobenzene, benzene and PCBs.
- Environmental risks to biota (i.e., fish, wildlife and plants) exposed to contaminated soils, sediments, or surface waters at the Site may potentially exist from the presence of PCBs, lead and aluminum.

Based on the results of the Endangerment Assessment, Applicable or Relevant and Appropriate Requirements (ARARs) and other guidance, target cleanup goals (see column 2 of Table 3-1) were established to protect human health and the environment from these identified risks. The ROD proposed a selected remedy for the Site that would meet these target cleanup goals.

**TABLE 3-1
CONTAMINANTS OF CONCERN AT SITE
FIVE-YEAR REVIEW REPORT
O'CONNOR COMPANY SITE
AUGUSTA, MAINE**

Contaminants of Concern ¹	Target Cleanup Goal ²	Selected Remedy ³
Soil		
PCBs	1 ppm	1 ppm (DA=10 ppm) ³
CPAHs	1 ppm	1 ppm (DA=10 ppm) ³
Lead	248 ppm	248 ppm
Cadmium	NA	NA
Copper	NA	NA
Nickel	NA	NA
Zinc	NA	NA
Surface Water		
PCBs	0.065 ppb	0.065 ppb
Lead	1.94 ppb	1.94 ppb
Aluminum	87 ppb	87 ppb
Groundwater		
PCBs	0.5 ppb	0.5 ppb
Benzene	5 ppb	5 ppb
1,4-Dichlorobenzene	27 ppb	27 ppb
Bis 2-ethylhexylphthalate	NA	NA
Chromium	NA	NA
Manganese	NA	NA
On-Site Sediment		
PCBs	1 ppm	1 ppm (5 ppm ⁴)
CPAHs	1 ppm	1 ppm
Lead	248 ppm	248 ppm
Copper	NA	NA
Manganese	NA	NA
Zinc	NA	NA
Riggs Brook Sediment		
PCBs	1 ppm	1ppm/5 ppm ⁵
Riggs Brook Biota		
PCBs	NA	2 ppm ⁶

Notes:

1. Based on Results of the RI.

2. Based on results of Endangerment Assessment, ARARs, and other guidance.

3. Target cleanup goal for ROD (September 1989) Selected Remedy, and revised by ESD (Explanation of Significant Differences (July 20, 1994)). DA = Designated Area.

4. OU-1 Area 3 soils near Riggs Brook wetland.

5. 1 ppm is the target cleanup goal; 5 ppm is the trigger level for performing additional sampling and determining whether further remedial action is necessary. ROD pg. 47 and 52; Revised SOW (October 20, 1994), pg. 15.

6. ROD pg. 47 and Revised SOW pg. 15.